

WHAT IS CLAIMED IS:

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1. A fuel cell system comprising:
    - (a) a source of a fuel and water emulsion,
    - (b) a fuel reformer for receiving said emulsion and producing product including hydrogen gas,
    - (c) a hydrogen-oxygen fuel cell connected to said reformer and able to receive hydrogen from said reformer.
  2. The fuel cell system of claim 1 wherein said source is a container which is capable of supplying said emulsion to said reformer.
  3. The fuel cell system of claim 1 further comprising a water gas shift reactor between said reformer and said fuel cell.
  4. The fuel cell system of claim 1 further comprising a water gas shift reactor between said reformer and said CO clean-up processor.
  5. The fuel cell system of claim 1 further comprising a preheater for heating said emulsion before said emulsion enters said reformer.
  6. The fuel cell system of claim 1 wherein said fuel is selected from the group consisting of alcohols which form emulsions with water, jet fuel, naphtha, gasoline, kerosene, Fischer-Tropsch derived liquids and mixtures thereof.

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7. The fuel cell system of claim 1 wherein said fuel and water emulsion further comprises a freezing point depressant.

8. The fuel cell system of claim 1 wherein said fuel and water emulsion is a fuel in water emulsion.

9. The fuel cell system of claim 1 wherein said fuel is a water in fuel emulsion.

10. The fuel cell system of claim 6 wherein said freezing point depressant is an alcohol.

11. The fuel cell system of claim 1 wherein said fuel and water emulsion further comprises a surfactant.

12. The fuel cell system of claim 1 wherein said surfactant is non-ionic.

13. The fuel cell system of claim 1 wherein said surfactant only includes C, H, and O.

14. The fuel cell system of claim 1 further comprising a water recovery means from said fuel cell.

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15. A method for operating a fuel cell system including a hydrogen-oxygen fuel cell comprising producing said hydrogen from a fuel and water emulsion.

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16. The method of claim 10 wherein said fuel and water emulsion includes fuel and water in a ratio of about 0.5 to 3.0 moles of water per mole of carbon in said fuel and water emulsion.

17. The method of claim 11 wherein said fuel is selected from the group consisting of alcohols which form emulsions with water, jet fuel, naphtha, gasoline, kerosene, Fischer-Tropsch derived liquids and mixtures thereof.

18. The method of claim 11 wherein said fuel and water emulsion further comprises a freezing point depressant.

19. The method of claim 13 wherein said freezing point depressant is an alcohol.

20. The method of claim 11 wherein said fuel and water emulsion further comprises a surfactant.

21. The method of claim 15 further comprising the step of reforming said fuel and water emulsion to produce a product including hydrogen gas.

22. The method of claim 21 further comprising the step of processing said reformed fuel to remove CO.

23. The method of claim 21 further comprising the step of preheating said emulsion before said reforming step.

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